



AlphaStation™ 255 4/300

CPU Upgrade Information

Order Number: EK-VLLXA-CP. B01

Digital Equipment Corporation
Maynard, Massachusetts

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FCC Information - Class B

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

Any changes or modifications made to this equipment may void the user's authority to operate this equipment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

The user may find the following booklet prepared by the Federal Communications Commission helpful: *How to Identify and Resolve Radio-TV Interference Problems*. This booklet is available from the U.S. Government Printing Office, Washington, D.C., 20402. Stock No. 004-00398-5.

All external cables connecting to this basic unit need to be shielded. For cables connecting to option boards, see the option manual or installation instructions.

This digital apparatus does not exceed the Class B limits for radio noise emissions set out in the radio interference regulations of the Canadian Department of Communications.

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Preface

AlphaStation 4/300 CPU Upgrade

This booklet guides you through the upgrade process for your AlphaStation 255 Series system from a 4/233 to a 4/300 system.

Audience

The information included here is intended for anyone upgrading the performance of a Digital AlphaStation 255 Series system.

Abbreviations

This guide uses the following abbreviations:

Abbreviation	Meaning
CPU	Central processing unit
DROM	Diagnostic read only memory
ESD	Electrostatic discharge
MHz	Megahertz
PAL	Programmable array logic
SROM	Serial read only memory

Preface

Special Notices

This guide uses the following notices to emphasize specific information:

WARNING

A WARNING indicates the presence of a hazard that can cause personal injury.

CAUTION

A CAUTION indicates the presence of a hazard that can damage hardware or that might corrupt software.

NOTE

A NOTE provides information on general topics, such as compatibility with other products, or pointers to other sources.

Additional Information Resources

You may wish to consult the following resources for information on your AlphaStation 255 Series system:

- *Digital AlphaStation™ 255 Series Installation Information* (order number EK-VLLXA-II) presents a graphical overview of the AlphaStation 255 Series installation.
- *Digital AlphaStation™ 255 Series User Information* (order number EK-VLLXA-UI). This manual contains information to start, use, update, troubleshoot, and configure your AlphaStation 255 Series system. You can also find general system information such as console commands and system care here.

Contact your distributor or Digital representative for other available product-related information.

Upgrading to a 4/300-MHz System

Introduction

Upgrading the performance of your AlphaStation 255 Series system is a relatively simple procedure. Upgrading from a 4/233 to a 4/300-MHz system requires three main tasks:

1. Replace the CPU chip.
2. Replace the INT/PAL.
3. Change CPU speed /switch setting.

CAUTIONS

While performing the upgrade, you must touch some electronic components. Treat these high-performance components with care:

- To prevent damage to components from electrostatic discharge (ESD), use the wrist strap included in the upgrade kit.
 - Insert and remove components gently. The contacts on the components and the sockets in which they fit are delicate. Make sure the component and socket are properly lined up before inserting.
-

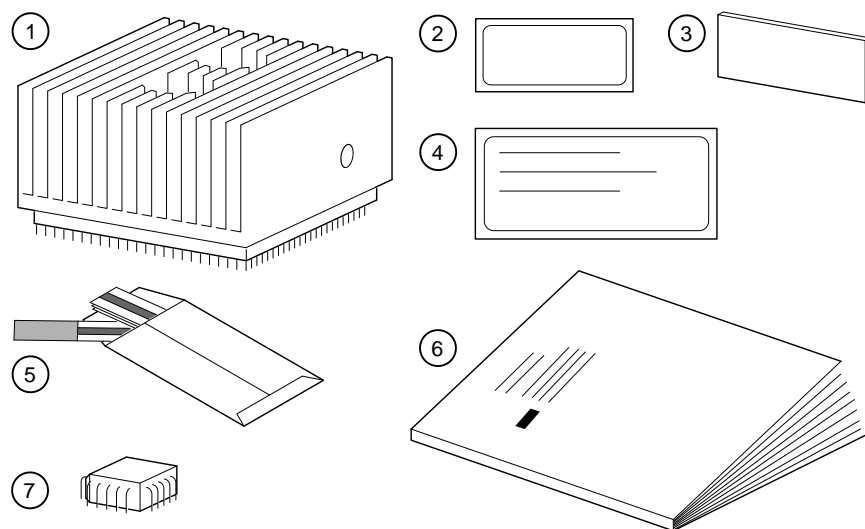
Upgrading Your System

Upgrade Kit Inventory

The AlphaStation 255 4/300 upgrade kit contains the following items, shown in Figure 1:

- ① CPU and heat sink assembly
- ② Conversion label
- ③ Medallion
- ④ Mailing label
- ⑤ Antistatic wrist strap
- ⑥ Documentation
- ⑦ INT/PAL

Figure 1. Kit Contents



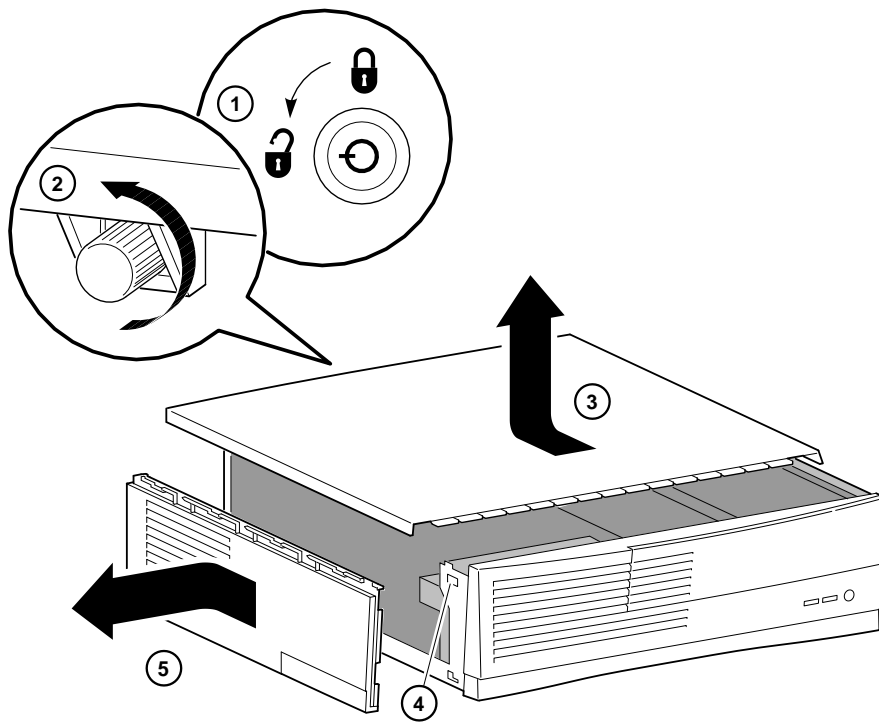
The packaging materials are reused to return the old CPU/heat sink assembly to Digital Equipment Corporation.

Upgrading Your System

To prepare your system for the upgrade:

1. Back up your hard disk(s).
2. Shut down the operating system using the appropriate command.
3. Turn off the power and unplug the power cable.
4. Facing the rear of the unit, unlock the chassis lock ①.
5. Locate and loosen the thumbscrew ② that fastens the top cover to the system rear panel. Place your thumbs on the upper corners of the rear panel, pull back on the cover, and lift the cover ③ up and away from the enclosure.
6. To gain further access, remove the left side panel (closest to the PCI options), press in the left-side tab ④ to release the side panel. Slide the panel ⑤ toward the rear of the system and remove it.

Figure 2. Unlocking and Removing System Cover



Remove the Components

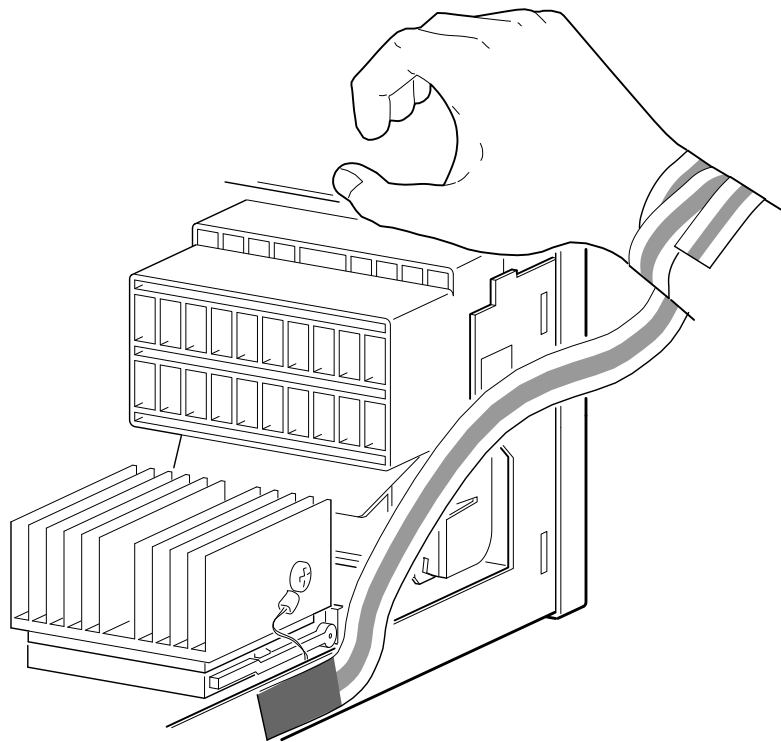
This section takes you through the steps to remove the components. Exercise care when removing the components.

CAUTION

Do not touch any electronic component unless you are wearing the antistatic wrist strap and the strap is attached to the system. A static discharge can permanently damage electronic components.

1. Put the antistatic strap around your bare wrist and attach it to the system, as shown in Figure 3.

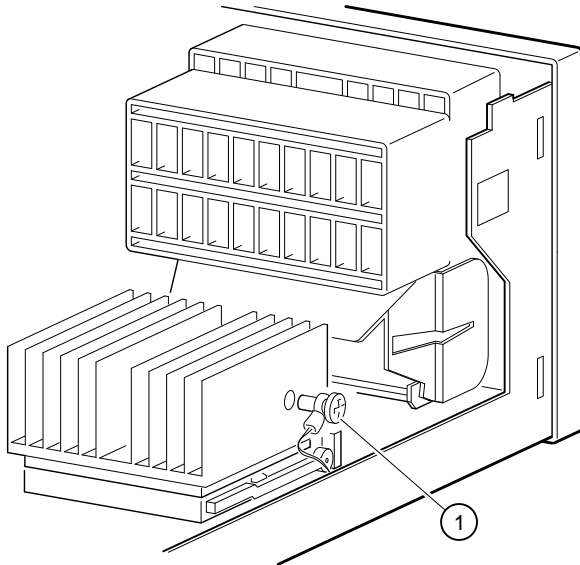
Figure 3. Using the Antistatic Wrist Strap



Upgrading Your System

2. Remove the thermistor mounting screw ① from the CPU heat sink, as shown in Figure 4. Set the screw aside. Gently pull the thermistor away from the heat sink until there is enough clearance (approximately ¼ inch) for the socket release lever.

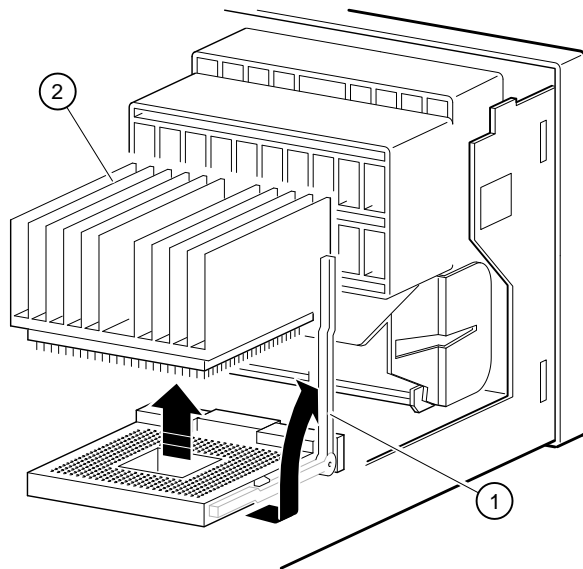
Figure 4. Removing the Heat Sink Thermistor Screw



Upgrading Your System

3. Release and raise the CPU socket release lever ① as shown in Figure 5. Gently lift the heat sink and CPU assembly ② out of the socket. Set the assembly aside for return to Digital Equipment Corporation.

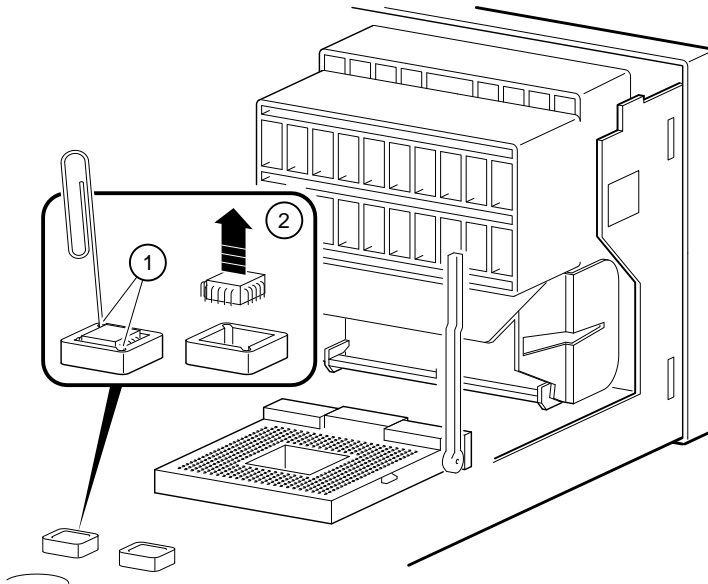
Figure 5. Removing the CPU



Upgrading Your System

4. At the location shown in Figure 6 (marked E58 on the motherboard), use a large paper clip ① to *gently and evenly* pry the INT/PAL ② upward in the socket. Once the INT/PAL is free, grab and remove it.

Figure 6. Removing the INT/PAL



Upgrading Your System

Add the New Components

This section contains the steps you perform to add the new components and complete the upgrade.

When inserting the new components into the motherboard, keep these guidelines in mind:

- Wear the antistatic wrist strap and keep it attached to the system while handling components.
- Be gentle. The pins and contacts of the components are fragile.
- Doublecheck that the components are oriented correctly.

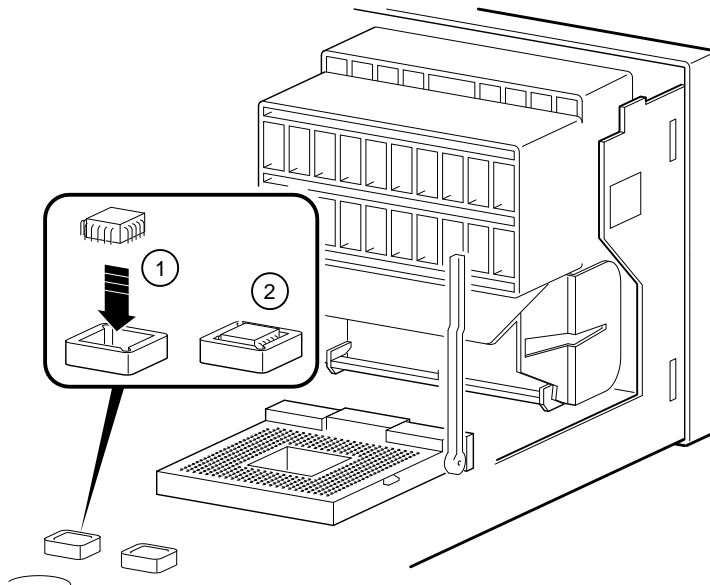
CAUTION

Orientation of components is critical. Make sure the component is properly oriented to its socket before inserting it.

Upgrading Your System

1. While referring to Figure 7, locate the new INT/PAL ① and orient it to the socket using the beveled corner as a guide. Insert the INT/PAL with a *gentle* downward pressure. Once the INT/PAL is aligned, use *firm* downward pressure to seat the INT/PAL into the socket ②.

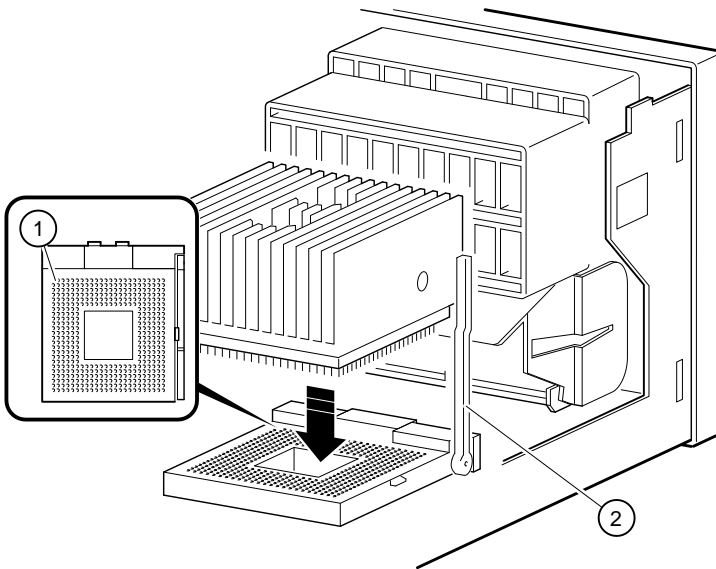
Figure 7. Replacing the INT/PAL



Upgrading Your System

2. Make sure that the CPU socket release lever ② is raised to the vertical position, as shown in Figure 8.
3. Locate the new CPU/heat sink assembly and inspect it to verify that none of the pins is bent. Orient the assembly to the socket, as shown. Notice that one corner of the socket ① is missing a hole (for keying purposes). Align the corresponding corner of the chip with this corner, and carefully insert the new CPU chip. *No pressure is required.* Once aligned with its socket, the CPU assembly should drop in easily.

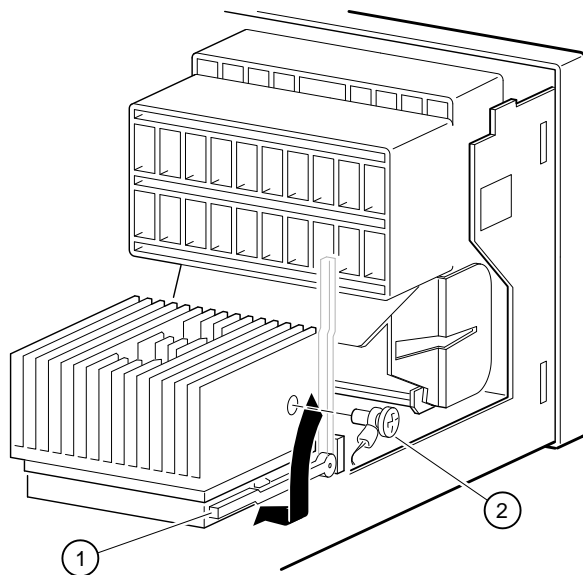
Figure 8. Inserting the CPU Assembly



Upgrading Your System

4. Lower the socket-release lever ① until it snaps in place, as shown in Figure 9.
5. Using the screw you set aside earlier ②, fasten the thermistor to the heat sink.

Figure 9. Securing the CPU Assembly



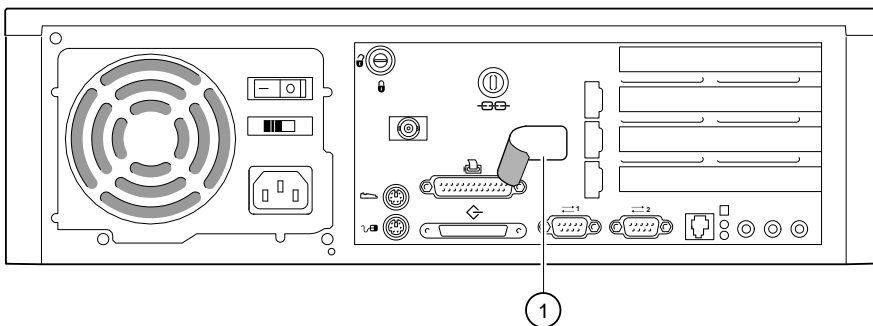
Upgrading Your System

6. Change SWI switches 6, 7, and 8 to the following positions:

CPU Speed Switch	Position
6	OFF
7	ON
8	OFF

7. Disconnect the antistatic wrist strap from the system and remove it from your wrist.
8. Locate the conversion label ① in the upgrade kit and apply it to the rear connector bulkhead, as shown in Figure 10.

Figure 10. Conversion Label



Upgrading Your System

9. Replace the system side panel.
10. Replace the system top cover, and secure it with the thumbscrew.
11. Locate the Model 4/300 medallion, peel off the backing, and place the medallion over the old model number just below the raised DIGITAL logo on the front of the system unit.
12. Connect the power cord and turn the power on.
13. Boot the operating system.
14. Return the old CPU/heat sink assembly to Digital Equipment Corporation. Pack it in the box that contained your new CPU. Place the CPU box inside the upgrade kit box. Locate the prepaid return label in the upgrade kit, attach it to the box, and return the package by mail.

Upgrading Your System

Troubleshooting

This section describes what to do if the system exhibits problems after the upgrade is completed.

It is assumed that the system was functioning normally before the upgrade installation. Refer to Table 1 to identify and solve problems that occurred after the upgrade installation.

Table 1. System Troubleshooting

Problem	Possible Cause	Action
Power indicator not on.	System is not plugged in.	Turn off the system, plug it in, and then turn it back on again.
	No power at the wall outlet.	Use another wall outlet.
	Power supply failure.	Contact your service representative.
Power is on, but there is no screen display.	Brightness and contrast controls were inadvertently changed when moving the monitor.	Adjust the brightness and contrast controls.
	Cable loose or not connected.	Reseat and secure video cable.
	Monitor is off.	Turn on the monitor.
The ARC or SRM console does not start.	SROM test failing or DROM test failing.	Check the upgrade components for proper orientation and seating.
	Switches set to incorrect clock speed.	Ensure that SW1 switches 6, 7, and 8 are set for 300-MHz. Refer to the label mounted over the CD drive bracket. Call your Digital service representative.
System does not boot.	Loose cables.	Secure all cable connections.